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1913

COURSE OF STUDY

IN

INDUSTRIAL EDUCATION

INCLUDING

DOMESTIC SCIENCE, MANUAL TRAINING
AND AGRICULTURE

For

THE SCHOOLS OF NEW MEXICO

FEBRUARY, 1913

PREPARED BY

MANETTE A. MYERS

Manette Myers State Director of Industrial Education

ADOPTED BY

STATE BOARD OF EDUCATION

ISSUED BY

STATE DEPARTMENT OF EDUCATION

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FOREWORD

In compliance with Chapter 52, Laws of 1912, Section 1, which empowers the State Board of Education to prescribe and adopt a Course of Study for **Industrial Education**, including Domestic Science, Manual Training, and Agriculture, and make all necessary rules and regulations for its teaching in the Public Schools of the State, the State Board of Education has adopted the following course to be used in the Public Schols.

Pursuant to Section 2 of said Chapter which directs the State Superintendent of Public Instruction to appoint a State Director of Industrial Education, who shall be proficient in the several branches of such education and who shall, under the direction of the State Superintendent, have the general charge of the introduction and teaching of Industrial Education in such of its branches and in such of the Public Schools of the State, as shall be deemed advisable by the State Superintendent and the State Director of Industrial Education, I have recently appointed Miss Manette A. Myers, of Raton, who has had special training and practical experience along the lines of Industrial Education.

After a careful consideration of this matter, there appears to me to be no good reason why some or all of these courses in Industrial Education should not be taught in our rural and city schools. Education must be related to practical life and our children, both in the city and country, must be trained so far as possible to meet well the problems of everyday life.

Therefore, I most earnestly urge every teacher to interest the respective school boards and school patrons in this important branch of education. The expenses for introducing these courses and keeping them in the public school is very small and, if the teachers will make an earnest effort, I feel sure they will find it easy and practicable to follow these courses. I believe, too, that work along these lines in our public schools will create a greater interest in the schools, keep children in school for a longer period and increase promptness and regularity in attendance.

In conclusion and after a most careful consideration of the wording and spirit of the law, I believe it within my power to hold that all public schools shall teach some or all of the branches for which courses are herein submitted, and I sincerely urge that the law, in this respect, be carefully complied with by all school authorities of the State.

Very respectfully yours,

ALVAN N. WHITE,
State Superintendent of Public Instruction.

INTRODUCTION

This course of study is issued as a guide to assist both teachers and pupils. It has been arranged with a view to placing a "working outline" in the hands of the teacher who has not had special training along the lines of Industrial Education.

The results expected must, of necessity, vary greatly in the rural school. Primarily the course is fitted for the rural schools having eight years of nine months each, which is the standard for all schools, and it is therefore necessary for the teachers in schools having less than nine months, or those in any school having but one teacher to adapt the outline in order to make it fit the needs of her school.

In this course we do not seek to add to the burden of the teacher, but to lessen her work, and to unify the school work of the state by presenting a definite plan and outline of the work.

I would suggest that one period on each Wednesday and Friday be devoted to Industrial subjects and that the usual lessons in Geography, Physiology, Grammar and History be omitted on those days to make room on the program for this industrial work. On Wednesday the girls may spend a very profitable hour in Domestic Science while the boys do some Manual Training work and on Fridays the girls may spend the last hour of the day in sewing while the boys study and practice Agriculture.

It is not easy and sometimes quite unwise for a teacher to attempt to teach two subjects at one time, yet in these subjects it can be done in many instances and when it cannot then the time should be divided equally, giving half the period to the girls and the other half to the boys. I have found that while teaching sewing to a class of girls the boys of the same grade may be doing written work in Agriculture on studying the text-book or making drawings and that while teaching domestic science to a class of girls and perhaps to some boys who also wish to learn to cook, the other boys of the same grade may be doing manual training work, such as wood carving, book binding, designing and drawing. This may seem very difficult to those who have never tried teaching these subjects, but before making such a conclusion I urge you to make an attempt. I realize that no teacher can teach that which he does not know, but these outlines are so arranged that a tactful teacher can make use of what knowledge he already possesses in beginning this work. Simple lessons in these subjects will be published from time to time to en-

able the teacher to carry it on successfully. Work in these subjects is now imperative and teachers will therefore be gratified to know that these outlines have been tested in our state and found not only possible but practical. Lists of reference books are suggested which will aid the teacher. More complete lists may be obtained from the State office of Industrial Education, Santa Fe.

Industrial work will be taken up in the various institutes of the state and one can hardly pick up a magazine of today without finding some suggestions of practical value. A progressive teacher will outgrow the limits of any course of study. I trust you will use this outline faithfully, and discard it only when confident that you have a better way.

I take great pleasure in expressing my obligation to the New Mexico Agricultural College, the New Mexico Normal University, the New Mexico Normal School, the Kansas State Agricultural College, and Colorado Agricultural College, for many valuable suggestions.

MANETTE A. MYERS,
State Director of Industrial Education.

"We believe that the time is rapidly approaching when both industrial and commercial education shall be introduced into all schools and made to harmonize with the occupations of the community. We believe that it is the duty of the state not only to qualify its children to be good citizens, but also as far as possible to be useful members of this community."

GENERAL SEWING OUTLINE—CITY OR RURAL SCHOOLS—GRADES I TO VIII

GRADE I.

1. Art Implications:—

The choice and combination of color fitness to use.

2. Textiles:—

Braiding cords, raffia strings for tying parcels, weaving paper mats for cornucopias, gift-baskets, weaving of wicking and rag mats for doll's house.

3. Application:—

Sewing cards, coarse canvas mats, pen-wipers, needle-book of cardboard, fringed towel, cord and raffia work, napkin-ring, cambric picture book.

GRADE II.

1. Art Implications:—

Appréciation and observation of line in cutting, use of pictures in decoration of books, selection of color in knitting and weaving, flags.

2. Textiles:—

Warp and woof; finger crocheting; spool knitting; rugs for dolls; woven doll hammocks on rings; Indian blankets; use of scissors in cutting out pictures.

3. Book Binding:—

Make word book of unfolded sheets, paper covers, leaves punched and laced; book for paper cuttings of folded sheets sewed through the fold, flexible covers; envelopes and drinking cups of Manila paper.

4. Application:—

Doll's blanket and bed-spread; weather flags and signal flags, flags of nations; book covers; pencil case; iron holders, wigwams, etc.

GRADE III.

1. Drill in measuring, use of tools, proper position.

2. Textiles:—

Appréciation of weave in coarse fabrics; edges—raw and selvedge.

Cotton—its growth and manufacture.

3. Application:—

Coarse sewing, burlap iron holders, canvas mats, bag and cushion; crocheting doll's tam, afghan or sweater; book-binding; wash cloths; bibs; ball covers; marble bags; buttons; bead work; roller towel; mending.

GRADE IV.

1. Co-operative Work:—

Articles which may be used in the home, laundry, school and play; button-holes and darning.

2. Textiles:—

How materials are made—weaving—the warp and the woof; cotton, silk, wool, flax.

3. Application:—

Doll's house furnishings, sheets, pillow cases, mattresses, pillows, blankets, towels, table covers, etc.; Jackstone bags, button bags; pencil holders; covers pin cushions; cord and raffia work.

GRADE V.

1. Simple hand sewing, making simple articles in keeping with underlying ideals using: Hemming, running, basting, overhanding, combination, and blanket stitches.

2. Simple textile study—

3. Care of clothing and laundering; Christmas gifts.

4. Application:—

Doll Clothes.

Sampler I and II; glass towel, dust cloth, sewing apron, holders, dust cap, cover for broom, etc.

GRADE VI.

1. Making of simple articles using all the stitches previously learned, all necessary to plain hand sewing and many for decorative work.

2. Simple textile study:—

Darning, simple embroidery, Christmas gifts.

3. Application:—

Work bag, apron, pillow case, napkins—embroidered, stocking-bag, dresser scarf, Dutch collar, Christmas gifts, patching and mending.

GRADE VII.

1. Including needlework, use of patterns, simple pattern drafting, and garment making introducing simple machine work.

2. Textile Study:—

Discussion of early industries and evolution of their manufacture.

Economical buying and cutting of materials.

3. Simple designing and pattern drafting.

4. Application:—

Embroidered guest towel; book covers; night gown, corset cover, table scarf, pillow top, ribbon Christmas gifts.

GRADE VIII.

1. Making of articles using stitches previously learned. Machine work, repairing, patching, and cleansing garments, use of machine attachments.

2. Make a sample book explaining use of different kinds of cloth.
3. Application:—
Cotton dress, night gown, drawers, corset cover, pillow cases,
Domestic Science uniform.
4. Pattern drafting.
5. Text may be followed.

Equipment Each Child Should Own.

Scissors.
Tape measure.
Thimble.
Pins.
Needles—5 to 10.
Thread—50-70 White.
Pincushion.
Emery.
Shoebox.
Note book.
Material as needed.

Equipment for 24 Pupils.

(Optional)

2 doz. chairs.
6 tables.
6 sewing machines.
1 exhibit case.
1 teacher's desk.
1 mirror—large and long.
1 gas stove and 6 sad irons or
1 electric iron.
1 screen..
1 doz. scissors.
1 roll paper for pattern drafting.
1 doz. spools white cotton thread, 8-120.
1 doz. red thread.
Cotton, wool, silk, and flax exhibits.
1 blackboard.
1 ironing-board.
Lockers.
4 foot stools.
2 yds. basket cloth.
 $\frac{1}{2}$ doz. tape measures.
 $\frac{1}{2}$ doz. emeries.
 $\frac{1}{2}$ doz. tracing wheels.
1 doz. thimbles.

THIRTY SUGGESTED LESSON OUTLINES— GRADE V.

Lesson I.

1. Reasons for studying Domestic Art.
 - a. Child's.
 1. Develop unselfishness.
 - b. Teacher's.
 1. Ethical.
 2. Utility.
 3. Financial.
2. Equipment.
 - a. Lead child to suggest.
 1. Scissors 5 inches long.
 2. Tape measure.
 3. Thimble that fits.
 4. Pins.
 5. Needles—5 to 10's.
 6. Thread—White 50-70.
 7. Pincushion.
 8. Emery.
 9. Shoebox.
 10. Note book.

Lesson II.

1. Teacher's equipment on hand:
Basket cloth cut 5x7 inches.
Red Thread.
General notes on board.
2. A talk on stitches for interest.
3. Practical work.
 - a. Sampler No. 1 for back of needle book.
 1. Running stitch.
 2. Basting stitch.
 3. Combination stitch.

Lesson III.

1. Teacher's equipment on hand:
Samples of glass toweling.
Notes on thread upon board.
2. Talk on Thread.
 - a. Kinds.
 - b. Numbers.
 - c. How made.
 - d. Knots.
 - e. Emery.
3. Practical work.
 - a. Sampler No. 1 Continued.
 1. Back stitch.
 2. Overcast edges.

4. Assignment of next lesson on glass towels—1 yard.
 - a. Examine samples from all stores.
 - b. Why glass towels?
No lint.
 - c. Textile study—
 1. Fade? blue check? red check? quality? price? weave? width? length?
 2. Give child sample and let child shop.

Lesson IV.

1. Notes on needles.
2. Flannel cut 5x3 inches.
3. Practical work.
 - a. Pink the flannel for leaf of needle book; or teach Blanket stitch around edge.
 - b. Bind leaf into sampler with Binding stitch to finish needle book.

Lesson V.

1. Notes on cloth.
2. Talk on cloth.
 - a. Warp, woof, selvedge, nap.
3. Practical work—Towel—
 - a. Straighten goods.
 - b. Cut to a line to even.
4. Fold Hem.
 - a. Turn 1st fold $\frac{1}{4}$ inch—Crease, baste.
 - b. Turn 2nd fold $\frac{3}{8}$ inch—Crease, baste.
 1. Match all stripes.

Lesson VI.

1. Towel continued.
2. Talk on towels.
 - a. Kinds.
 - b. Uses.
 - c. Care of towels.
3. Practical work—Towel.
 - a. Hemming stitch.

Lesson VII.

1. Towel completed.
2. Oral review.
3. Practical work.
 - a. Hemming stitch completed.
 - b. Overhand ends.

Lesson VIII.

1. Outline Stitch.
2. Trace initial on towel.
3. Practical work.
 - Outline initial.
 - Neatness.

Lesson IX.

1. Teacher's equipment.
Notes on Model I.
2. Talk on laundering.
3. Practical work—Laundering—
 - a. Do not launder unless very soiled.
 - b. Do not starch.
 - c. Use little bluing.
 - d. Press in heavy damp towel.
 - e. Label.
 - f. Useful for Xmas gifts, etc.

Lesson X.

1. Written review.
2. Dust cloth samples.
3. Talk on dusting.
4. Assignment—1 yard cheese cloth.
Give child sample and let child shop.

Lesson XI.

1. Notes on hems.
2. Talk on miters.
3. Practical work—
 - a. Baste in hems.
 - b. Make paper model of miter corner.

Lesson XII.

1. Notes on miters.
Basket cloth, red thread.
2. Talk on Feather stitching
or chain stitching.
3. Practical work—
Sampler II to practice feather stitching and chain stitch.
4. Assignment—
Bring colored luster—1 spool.

Lesson XIII.

1. Notes on Feather stitching and chain stitching.
2. Practical work—
Feather stitch dust cloths.

Lesson XIV.

1. Finish dust cloths.
2. Talk on Holders.
3. Textile study.

Lesson XV.

1. Equipment—
Samples on Ticking and Outing Flannel.
2. Press and label Dust Cloths.
3. Practical work—
Finish Sampler II.

Lesson XVI.

1. Notes on blanket stitch.
2. Samples of flannel.
3. Practical work—
 Make and finish holders.

Lesson XVII.

1. Talk on Christmas gifts.
2. Simple Christmas gifts.
3. Practical Christmas gifts.

Lesson XVIII.

1. Dress a doll for a younger sister, brother or cousin.

Lesson XIX.

1. Vacation ideas.
2. Practical work.
 - a. Making a garment for the new Christmas doll, using stitches previously learned.

Lesson XX.

1. Equipment on hand—
 Samples of chambray.
2. Notes on Drafting dust cap.
3. Talk on dust cap.
4. Compare samples.
5. Draft on board and paper the pattern for a dust cap.
6. Assignment $\frac{3}{4}$ yard chambray.

Lesson XXI.

1. Talk on colors, harmony, etc.
2. Cut out dust caps.

Lesson XXII.

1. Make back of dust cap.

Lesson XXIII.

1. Combine back and front of dust cap.
2. Assignment—rubber, braid.

Lesson XXIV.

1. Finish dust caps.
 Label.
2. Equipment on hand for teacher:
 Samples of linen, lawn or dimity for aprons.

Lesson XXV.

1. Aprons.
2. Talk on Aprons.
3. Invoice of material on hand.

4. Teacher should have on hand—
 - a. Embroidery cotton—D. M. C. No. 25.
 - b. Thread, No. 60, white.
 - c. Buttons about $\frac{1}{4}$ inch in diameter.
5. Practical.
 - a. Sewing on buttons.
6. Assignment:
 - 1 yd. of material.
 - Lace if desired.

Lesson XXVI.

1. Draft apron pattern.
2. Cut out apron pattern—
 - a. Lengthwise on fold.
 - b. Band 3 inches wide and length of top of apron.
 - c. Strings 20 inches long, 3 to 5 inches wide.
 - d. Make strings.

Lesson XXVII.

1. Notes on lace.
2. Put lace on strings.
3. Make pockets.

Lesson XXVIII.

1. Aprons continued.

Lesson XXIX.

1. Face aprons.
2. Place band.

Lesson XXX.

1. Finish aprons.
2. Place strings.
3. Lace.
4. Feather stitch aprons for fast workers.

THIRTY SUGGESTED LESSON OUTLINES— GRADE VI.

Lesson I.

1. Equipment same as Grade V.
2. General Notes.
3. Assignment bags— $\frac{1}{2}$ yd.
4. Talk on bags.
 - a. Utility.
 - b. Beauty.
 - c. Cost.
 - d. Kinds.

Lesson II.

1. Practical work.
 - a. Cut and even bag.
 - b. Baste.
 - c. Sew bottom with backstitch.

Lesson III.

1. Practical work.
 - a. Sew sides with combination stitch.
 - b. Overcast raw edges.

Lesson IV.

1. Practical work.
 - a. Turn tops and sew down with hemming stitch.
 - b. Measure up $\frac{3}{4}$ inch to $1\frac{1}{2}$ inches and put in combination stitch to make the casing.
2. Assignment—
Cord or ribbon for draw strings.

Lesson V.

1. Put in draw strings.
2. Initial for fast workers.

Lesson VI.

1. Complete bag.

Lesson VII.

1. Notes on linen.
2. Samples of napkins.
3. Assignment—napkins.

Lesson VIII.

1. Even napkins.
2. Turn $\frac{1}{8}$ inch—Baste.
3. Turn $\frac{1}{4}$ inch—Baste.

Lesson IX.

1. French hem napkin.

Lesson X.

1. Napkin continued.
2. Talk on initials.

Lesson XI.

1. Place initial.
2. Embroider initial.

Lesson XII.

1. Darning stocking.
2. Textile study.
3. Assignment:
An article from home to mend.

Lesson XIII.

1. Practical work—mending.
2. Talks on mending.
3. Rips—Tears, etc.

Lesson XIV.

1. Christmas gifts.
2. Talk on Christmas Spirit.
3. Useful Christmas gifts.

Lesson XV.

1. Christmas gifts.

Lesson XVI.

1. Equipment—Samples of pillow casing.
2. Notes on Bed Linen.
3. Assignment—
2 $\frac{1}{3}$ yds. for two pillow cases.
Embroidery thread.
Embroidery Needle.

Lesson XVII.

1. Practical work.
 - a. Tear to even.
 - b. Baste at side and one end—Selvedge edges together.
 - c. Backstitch end.

Lesson XVIII.

1. Practical work.
 - a. Overcast end.
 - b. Overhand selvedge side.

Lesson XIX.

1. Practical work—Hem.
 - a. Turn $\frac{1}{4}$ inch—crease and baste.
 - b. Make second turning 3 $\frac{1}{2}$ inches—crease and baste.

Lesson XX.

1. Sew down hem with small hemming stitch.

Lesson XXI.

1. Place initial.
2. Pad initial—German padding.
3. Work initial solid with French embroidery.

Lesson XXII.

1. Pillow cases finished.
2. Equipment on hand—
 - a. Samples of cretone and flannelette.
 - b. Stocking bag.
 - c. Cardboard.
3. Assignment:
Material 45x12 inches wide.

Lesson XXIII.

1. Cut cardboard and bag.
2. Hem woof ends $\frac{1}{4}$ inch hem.
3. Pleat with box pleat in center and then each way.

Lesson XXIV.

1. Practical work.
 - a. Cover cardboard.
 - b. Combine bag and cardboard.
 - c. Strings.

Lesson XXV.

1. Practical work.
 - a. Finish bag.
 - b. Variations for fast workers.
 1. Needle book.
 2. Darning bag, etc.

Lesson XXVI.

1. Lesson on darning.

Lesson XXVII.

1. Lesson on mending.
 - a. Matching stripes.
 - b. Hooks and eyes.

Lesson XXVIII.

1. Sewing on buttons.
2. Making buttonholes.
3. Assignment—Material for dresser scarf.

Lesson XXIX.

1. Turn $\frac{1}{4}$ inch—Baste.
2. Turn 1 inch and draw threads at each end.

Lesson XXX.

1. Hemstitch Dresser Scarf.
 - a. Stencil if desired.

**THIRTY SUGGESTED LESSON OUTLINES—
GRADE VII.**

Lesson I.

1. Enrollment.
2. Equipment.
3. General notes.
4. Talk on stitches.
5. Samples of huck toweling.

Lesson II.

1. Notes on embroidering.
2. Review Sampler I and II.
3. Assignment—1 yd. toweling.
4. Talk on embroidery.

Lesson III.

1. Guest towel.
2. Trace scallop.
3. Outline.

Lesson IV.

1. Towel continued.
2. Pad scallops.

Lesson V.

1. Embroider scallop.

Lesson VI.

1. Embroider scallop.
2. Trace initial.

Lesson VII.

1. Pad initial.

Lesson VIII.

1. Embroider initial.
2. Samples of goods for book covers.

Lesson IX.

1. Book covers.
2. Samples of material for night-gown.

Lesson X.

1. Designing and pattern drafting.
2. Drafting night-gown pattern to her own measurements.

Lesson XI.

1. Drafting of night-gown on cloth (36-inch longcloth or muslin).

Lesson XII.

1. Put on gores with folded seam.
 2. Cut selvedge off.
 3. Make French seams.
- (Note.—If machine is used, stitch with gauge.)

Lesson XIII.

1. Two children working together.
2. Put in $1\frac{1}{2}$ inch hem.

Lesson XIV.

1. Make roll hem at neck and sleeves.

Lesson XV.

1. Gathering on lace.
2. Use about $\frac{3}{4}$ inch lace.

Lesson XVI.

1. Feather stitch, outline stitch or chain stitch to finish sleeve hems.

Lesson XVII.

1. Finish gowns.
2. Christmas ideas.
3. Assignment—Ribbon.

Lesson XVIII.

1. Ribbon Christmas gifts.

Lesson XIX.

1. Draft shirtwaist pattern.
2. Talk on corset covers.

Lesson XX.

1. Develop corset cover pattern from shirtwaist draft.
2. Assignment—Material for corset cover.

Lesson XXI.

1. Cut out corset cover.

Lesson XXII.

1. Baste together.
2. Finish neck.

Lesson XXIII.

1. Finish arm's eye.
2. Sew on lace.

Lesson XXIV.

1. Finish with band at waist line.

Lesson XXV.

1. Buttons and button holes.
2. Assignment—Table Scarf.

Lesson XXVI.

1. Table scarf.

Lesson XXVII.

1. Finish table scarf.

Lesson XXVIII.

1. Make curtains for school room.

Lesson XXIX.

1. Pillow top.

Lesson XXX.

1. Finish pillow top.
2. Dutch collar.

THIRTY SUGGESTED LESSON OUTLINES— GRADE VIII,

Lesson I.

1. Enrollment.
2. Idea of the work.
3. Talk for interest.
4. Equipment.
5. Text on Textile Study.

Lessons I and II.

Draft drawer pattern.

Lessons III, IV, V, and VI.

Complete drawers.

Lessons VII and VIII.

Draft skirt patterns, 7 and 9-gore.

Lessons IX, X, XI, XII, XIII, XIV.

Complete underskirt.

Lesson XV.

Lesson on Dry Cleaning.

Lesson XVI.

Lesson on patching.

Lesson XVII.

Lesson on mending and repairing.

Lessons XVIII, XIX.

Make Domestic Science cap.

Lessons XX, XXI.

Make Domestic Science sleeve protectors.

Lesson XXII.

Make Domestic Science holder.

Lessons XXIII, XXIV.

Make Glass towel.

Lessons XXV, XXVI.

Draft Domestic Science apron.

Lessons XXVII, XXVIII, XXIX.

Make Domestic Science apron.

Lesson XXX.

Exhibit.

REFERENCE BOOKS IN SEWING.

- School Needlework Hapgood
New Mexico Agricultural College Bulletins.
Handicraft for Girls McLaughlin
Domestic Art in Woman's Education Cooley
A Sewing Course for Schools Mrs. Woolman
Elementary Laundry Work.
Library of Home Economics, Baltimore, Md.
The National System of Industrial Education, Department of Sewing,
Muncie Ind.
Extension Series No. 4 (Free), New Mexico Agricultural College.
Hand Sewing Lessons.....Krolik
Textiles Dooley
Sewing and Garment Drafting Blair
Butterick Pattern Co. Dress Making Up to Date.
Extension Department, Kansas State Agricultural College.
How the World is Clothed Carpenter
School Sewing Louise J. Kirkwood
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OUTLINES IN COOKING FOR CITY SCHOOLS

This course in cooking has been worked out in such a way as to make it thoroughly practical and workable in City Schools. The success of this work, as in all other subjects, depends largely upon the interest and enthusiasm of the teacher. If she undertakes it with a lively interest she will experience no difficulty in making the class in cooking the most pleasant, as well as the most profitable period of the day.

The General Outline is designed to cover four years' work. The Thirty Lessons outlined are based on the first year's work only.

Information regarding the cost of equipment may be had by application to M. A. Myers, State Director of Industrial Education, Santa Fe, New Mexico.

GENERAL OUTLINE.**Cooking I. Elementary.—First Year.**

Principles of cooking involved in working out recipes. Theory and practice in preparing coffee, tea, beverages, water, sugar, starch, vegetables, cocoa, chocolate, cereals, fats, eggs, meats, proteids, milk, cheese, candy. Serving.

Cooking II. Cooking.—Second Year.

Coffee, tea, fruits, cereals, legumes, meats, gelatine, fish, flour mixtures, soda, baking powder, yeast, bread, cake, custards.

Cooking III. Advanced Cooking.—Third Year.

Preparing advanced dishes, preserving fruit, jellies, salads, cakes, pastry, ice creams, pickles, oysters, timbals, cooking in deep fat, bread, cake, confectionary, serving of meals.

Cooking IV. Invalid Cookery.—Fourth Year.

Preparing trays and menus for indigestion, acute gastrites, cancer of the stomach, constipation, diarrhoea, fevers in general, typhoid fever, obesity, emaciation, anaemia, diabetes, billiousness, Bright's disease, tuberculosis, and rheumatism.

THIRTY SUGGESTED LESSON OUTLINES— FIRST YEAR

DOMESTIC SCIENCE.

Lesson I.

1. Divide class.
2. Enroll class.
3. Itemize personal needs.
 - a. Aprons.
 - b. Holders.
 - c. Towels.
 - d. Note books.
4. Reference.
 - a. Combustion.
 - b. Fuels.
 - c. Range.
 - d. Utensils.

Lesson II.

1. Theory.
 - a. Combustion.
 - b. Fuels.
 - c. Range.
 - d. Utensils.
 - e. Dictate Laboratory rules.
 - f. Dictate Housekeeper's rules.
2. Practice.
 - a. Write name on tape and sew it on towels, holders, apron, etc.
3. Reference.
 - a. Definition of food.
 - b. Food principles and uses.
 - c. Define hydrolysis.
 - d. Define digestion.
 - e. Organs.
 - f. Define absorption.
 - g. Define metabolism.
 - h. Define anabolism.
 - i. Define katabolism.
 - j. Define elimination.
 - k. Name organs of elimination.

Lesson III.

1. Theory.
 - a. Recite upon reference of previous lesson.
2. Reference.
 - a. Water.
 - Bergey.
 - Harrington.
 - Stephensen and Murphy.
 - Bashore.
 - Tompson.

Lesson IV.

1. Theory.
 - a. Water.
 1. Composition.
 2. Sources.
 3. Characteristics.
 - a. Physical.
 - b. Chemical.
 4. Contamination.
 5. Purification.
 6. Uses in the body.
 7. Necessity of pure water.
2. Practice.
 - a.
 1. Heat water.
 2. Moisture on outside.
 3. Air bubbles.
 4. Steam bubbles.
 5. Breaking bubbles.
 6. Temperature.
 - b. Boil sugar water.
 1. Observe temperature.
 - c. Hoarhound candy.
 - d. Chocolate fudge.
3. Reference.
 - a. Carbohydrate.
 - b. Sugar.

Lesson V.

1. Theory.
 - a. Sugar.
 1. Classification.
 2. Composition.
 3. Sources.
 4. Monosaccharids.
 5. Disaccharids.
2. Practice.
 - a. Fondant.
3. Reference.
 - a. Ferments.
 - b. Definition of fermentation.
 - c. Digestion of sugar.

Lesson VI.

1. Theory.
 - a. Definition of ferments.
 1. Organized.
 2. Unorganized.
 - b. Definition of fermentation.
 - c. Kinds of fermentation.
 - d. Characteristics of fermentation.
 - e. Digestion of disaccharids.
 - f. Absorption of disaccharids.
 - g. Metabolism of disaccharids.
 - h. Nutritive value of disaccharids.
 - i. Abuses of disaccharids.
 - j. Dietetic value of disaccharids.
 - k. Economic value of disaccharids.
2. Practice.
 - a. Bonbons.
3. Reference.
 - a. Starch.

Lesson VII.

1. Theory.
 - a. Starch.
 1. Source.
 2. Composition.
 3. Classification.
 4. Characteristics.
 5. Structure of granule.
 6. Manufacture.
 - b. Potato.
 - c. Corn.
2. Practice.
 - a. Boiled potato.
 - b. Riced potato.
 - c. Mashed potato.
 - d. Baked potatoes.
 - e. Stuffed potato.
3. Reference.
 - a. Starch—Continued.

Lesson VIII.

1. Theory.
 - a. Starch.
 1. Cookery.
 - a. Method.
 - b. Object.
 2. Digestion.
 3. Absorption.
2. Practice.
 - a. Starch experiment.
 - b. White Sauce Method I.
 - c. Creamed potatoes.

3. Reference.
 - a. Starch continued.
 - b. Written lesson.

Lesson IX.

1. Theory.
 - a. Starch.
 1. Nutritive value.
 2. Dietetic value.
 3. Economic value.
 4. Glycogen value.
2. Practice.
 - a. White Sauce Method II.
 - b. Cream of tomato soup.
 - c. Scalloped celery.
 - d. Croutons.
 - e. Buttered crumbs.
3. Reference.
 - a. Written review.

Lesson X.

1. Written review.
2. Practice.
 - a. White Sauce Method III.
 - b. Cream of pea soup.
 - c. Crisped crackers.
 - d. Scalloped cauliflower.
3. Reference.
 - a. Cellulose.

Lesson XI.

1. Theory.
 - a. Cellulose.
 1. Source.
 2. Composition.
 3. Classification.
 4. Characteristics.
 5. Digestion.
 6. Absorption.
 7. Elimination.
 8. Value as a food.
2. Practice.
 - a. Glazed sweet potato.
 - b. Buttered limas.
3. Reference.
 - a. Vegetables and Vegetable acid.

Lesson XII.

1. Theory.
 - a. Vegetables.
 1. Parts of plants used.
 2. Cookery.
 3. Value as food.

- b. Vegetable acids.
 - 1. Source.
 - 2. Kinds.
 - 3. Uses in body.
- 2. Practice.
 - a. Scalloped Macaroni.
 - b. Creamed onions.
- 3. Reference.
 - a. Cocoa and chocolate.

Lesson XIII.

- 1. Theory.
 - a. Cocoa and chocolate.
 - 1. Source.
 - 2. Composition of cocoa bean.
 - 3. Discussion of tree.
 - 4. Theobromine.
 - 5. Manufacture.
 - 6. Value as a food.
 - 7. Digestibility.
 - 8. Dietetic value.
 - 9. Economic value.
- 2. Practice.
 - a. Cocoa.
 - b. Chocolate cornstarch mould.
 - c. Creamed salisfy.
- 3. Reference.
 - a. Cereals.

Lesson XIV.

- 1. Theory.
 - a. Cereals.
 - 1. Source.
 - 2. Kinds.
 - 3. Composition.
 - 4. Peculiar characteristics of each.
 - 5. Digestibility.
 - 6. Breakfast foods.
 - a. Kinds according to
 - 1. Nutritive value.
 - 2. Cookery.
- 2. Practice.
 - a. Rice with raisins.
 - b. Cracked wheat.
 - c. Stewed figs.
 - d. Hard sauce.
- 3. Reference.
 - a. Review.

Lesson XV.

- 1. Mid-term examination.
- 2. Reference—Mineral matter.

Lesson XVI.

1. Theory.
 - a. Minerals.
 1. Kinds found in body.
 2. Uses.
 3. Effects of excess.
 4. Effects of absence.
 5. Digestion.
2. Practice.
 - a. Peerless Baked Apples.
 - b. Macaroni with tomato sauce.
3. Reference.
 - a. Fats.

Lesson XVII.

1. Theory.
 - a. Fats.
 1. Definition.
 2. Composition.
 3. Source.
 4. Characteristics.
2. Practice.
 - a. Soap making.
3. Reference.
 - a. Fats continued.

Lesson XVIII.

1. Theory.
 - a. Human Fat.
 - b. Digestion—Theories.
2. Practice.
 - a. Plain pastry.
 - b. Cranberry pie.
3. Reference.
 - a. Fat continued.

Lesson XIX.

1. Theory.
 - a. Fat.
 1. Absorption.
 2. Metabolism.
 3. Uses in the body.
 4. Dietetic value.
 5. Economic value.
2. Practice.
 - a. Creamed oysters.
 - b. Crustades browned in deep fat.
3. Reference.
 - a. Fat continued.

Lesson XX.

1. Theory.
 - a. Fat adulteration and substitutes.
 1. Adulteration of oils.

2. Adulteration of butter.
3. Manufacture of oleomargarine.
4. Adulteration of lard.
5. Pure Food Law.
2. Practice.
 - a. Mayonnaise salad dressing.
 - b. Celery and apple salad.
3. Reference.
 - a. Review.

Lesson XXI.

1. Theory.
 - a. Written review of fat.
2. Practice.
 - a. Dried peach pie.
 - b. Lemon pie.
3. Reference.
 - a. Eggs.

Lesson XXII.

1. Theory.
 - a. Explanation of proteid.
 1. Classification.
 - b. Eggs.
 1. Classification.
 2. Composition.
 3. Structure.
 4. Varieties.
 5. Tests of freshness.
 6. Methods of preservation.
 7. Why eggs spoil.
 8. Cookery.
2. Practice.
 - a. Egg experiments.
 1. Determine solubility, point of coagulation.
 2. Effects of acid, alkali, and alcohol.
3. Reference.
 - a. Egg continued.
 - b. Proteids.

Lesson XXIII.

1. Theory.
 - a. Eggs.
 1. Digestibility.
 2. Nutritive value.
 3. Dietetic value.
 4. Economic value.
 - b. Proteids.
 1. Composition.
 2. Classification.
 3. Properties.
 - a. Physical.
 - b. Chemical.

2. Practice.
 - a. Omelet.
 - b. French toast.
 - c. Caramel syrup.
3. Reference.
 - a. Proteid continued.

Lesson XXIV.

1. Theory.
 - a. Proteid.
 1. Digestion.
 2. Absorption.
 - b. Custards.
 1. Principles.
 2. Methods of cooking.
 3. General rule for simple custards.
 4. Tests when done.
 5. Substitutes for eggs.
2. Practice.
 - a. Caramel soft custard.
 - b. Baked custard in caramel lined mould.
3. Reference.
 - a. Proteid continued.

Lesson XXV.

1. Theory.
 - a. Proteid.
 1. Metabolism.
 2. Value in diet.
2. Practice.
 - a. Bread pudding.
 - b. Custard pie.
3. Reference.
 - a. Milk.
 - b. Review of proteid.

Lesson XXVI.

1. Theory.
 - a. Milk.
 1. Definition.
 2. Sources.
 3. Classification.
 4. Composition.
 5. Properties.
 6. Quality.
 7. Adulterations.
 8. Contamination.
 9. Care of milk.
 10. Fermentation.
2. Practice.
 - a. Steamed tapioca custard.
3. Reference.
 - a. Milk continued.

Lesson XVII.

1. Theory.
 - a. Milk.
 1. Methods of preservation.
 2. Digestion.
 3. Digestibility.
 4. Nutritive value.
 5. Dietetic value.
 6. Economic value.
2. Practice.
 - a. Rice pudding.
3. Reference.
 - a. Cheese.

Lesson XXVIII.

1. Theory.
 - a. Cheese.
 1. Definition.
 2. Composition.
 3. Varieties.
 4. Manufacture.
 5. Poisoning.
2. Practice.
 - a. Cheese souffle.
 - b. Cheese canapas.
3. Reference.
 - a. Cheese, continued.

Lesson XXIX.

1. Theory.
 - a. Cheese.
 1. Nutritive value.
 2. Digestibility.
 3. Economic value.
2. Practice.
 - a. Cheese Fondue.
 - b. Cheese straws.
3. Reference.
 - Final.

Lesson XXX.

1. Home nursing.
2. Preparation of trays for invalids.
3. Final examination.

DOMESTIC SCIENCE REFERENCE BOOKS.

1. "The Boston Cooking School Cook Book"—Fannie Farmer; \$2.00.
2. "Boston School Kitchen Text Books"—Mrs. Mary J. Lincoln; \$1.00.
3. "Elements of the Theory and Practice of Cookery"—Williams & Fisher; \$1.00.

4. "School Luncheons for Country Schools Without a Kitchen"—Mrs. Richards; 10 cents.
 5. Free Bulletins of the U. S. Department of Agriculture, including the following:
 - Preparation and Cookery of Meat.
 - Preparation and Cookery of Vegetables.
 - Canning and Preserving.
 - The Daily Meals of School Children.
 - Care of Milk.
 6. Free Bulletins of the New Mexico Agricultural College, P. O. State College, N. M.
 7. "The National System of Industrial Education," Muncie, Indiana, Department of Cooking.
 8. "Domestic Science in Elementary Schools"—Williams.
 9. Handbook of Domestic Science and Household Arts for Use in Elementary Schools"—Wilson.
 10. "Home Care of the Sick"—Pope.
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DOMESTIC SCIENCE OUTLINE

An inexpensive course of 30 Lessons in Cooking suggested for Rural Schools. Chosen with the thought of using them in connection with the preparation of a hot dish to be served at noon, with cold lunches.

NOTE.—These lessons are only suggestions and can be enlarged upon at any time.

The course of study in Domestic Science has been arranged with a view to placing in the hands of the teacher in the rural schools a suitable working outline that shall be at once a means of creating and holding interest in the affairs of the everyday household. Knowledge along this line is of vital importance. "Such work if practically presented should also help to develop in a greater degree, observation, inventiveness and exactness.

The lessons are in the main progressive, and so related that each lesson is preparatory to the one that shall follow.

Special points to which attention is called are: the value of neatness and exactness in the execution of class exercises, the keeping of strict account of value of supplies, whether purchased by the school or acquired through donation, and accurate note book records.

Frequent requests have come to the instructors in Domestic Science for information as to the kind and amount of subject matter along housekeeping lines, that may be suitably taught in the rural schools; the inquiry relates also to the necessary equipment, the cost and the most usable reference books. Obviously, no set of arbitrary statements can be made in reply to such questions. Each locality will call for modifications of any specific set of lessons, list of equipment and desirable books of reference. This outline has been arranged with a view to placing a working outline in the hands of the teacher who has not had special training along home-making lines.

The results expected must, of necessity, vary greatly in the rural

school, but it should be so presented that the younger students may have some part in the development of the greater part of the lessons. The part taken by a second grade boy may be limited to the measuring of sugar or milk for the cooking lesson or to scouring the knives in the dishwashing. But to insure the greatest success there should be co-operation on the part of the entire school.

It is suggested that each pupil bring a few dishes for the individual serving of foods prepared in large quantities—these dishes to be always reserved for the use of the pupil bringing them.

The food supplies for the one lesson a week will be gladly donated from the home represented.

The average minimum cost per girl, per recipe being $.02\frac{1}{2}$ —a small sum may be required of the student to partially cover the cost of materials." The candy making lesson may be worked in at Christmas time and the cost be diminished by asking the pupils to bring the sugar for their own candy—the flavorings being furnished by the school.

ELEMENTARY COOKING.

Lesson I.

1. Object of this study.
2. Personal cleanliness.
 - a. Care of the body.
 1. Baths.
 2. Clean underwear.
 - b. Care of hands and nails.
 - c. Care of hair and head.
 - d. Neatness.
 1. Value of having buttons on clothes.
 2. Ventilation.
3. How to build a fire.

Lesson II.

1. Stoves and Ranges.
 - a. History.
 1. Cooking out of doors.
 2. Fireplace.
 3. Invention of cook-stove in 1785.
 4. Development of modern range.
 - b. Study of modern range.
 1. Fire box.
 2. Stove pipe.
 3. Ash-pan.
 4. Dampers.
 5. Oven.
 6. Warming-oven.
 7. Water front or back.
 8. Tank or reservoir.

- c. Points of a good range.
 - 1. Plain style, easily cleaned.
 - 2. Fire-box to admit coal 7 inches deep.
 - 3. Grate—double reversible.
 - 4. Dampers—easily controlled.
 - 5. Oven large and of even temperature.
 - 6. Arrangements for heating water.
- d. Gas, oil stoves, electric stoves.
- 2. Fuels.
 - a. Solid.
 - b. Liquid.
 - c. Gaseous.
- 3. Practice.
 - a. Prepare meat broth—garnish.
 - b. Crisped crackers.
- 4. Notes on soup.

Lesson III.

- 1. General rules.
 - a. Rules for Housekeepers No. I.
 - b. Rules for Housekeepers No. II.
- 2. Utensils.
 - a. Comparison of cost and materials.
- 3. Food.
 - a. Classification.
 - 1. Fat.
 - 2. Proteid.
 - 3. Carbohydrates.
 - 4. Mineral Matter.
 - 5. Water.
 - b. Digestion.
- 4. Practice.
 - Boil water.
 - Cambric tea.

Lesson IV.

- 1. Dishwashing.
 - a. Collect knives, forks and spoons.
 - b. Scrape dishes and pack neatly where they are to be washed.
 - c. Have dishpan half full of hot, soapy water and drainer near.
 - d. Wash glasses.
 - e. Wash silver.
 - f. Wash china, taking the less soiled dishes first.
 - g. Scald dishes with hot water.
 - h. Do not leave soap in the water.
 - i. Wash bright tinware in clean, hot, soapy water.
 - j. Greasy ironware should be wiped out with soft paper to absorb grease, then washed in scalding hot suds and wiped dry.
 - k. "A place for everything, and everything in its place."
 - l. Wash out dish towel and dish cloth.
- 2. Practice.
 - a. Pea soup and tomato soup.
 - b. Toast and croutons.

Lesson V.

1. Measurements.
 - 3 tsp.=1 tbsp.
 - 16 tbsp.=1 c.
 - 2 c.=1 pt.
 - 2 pt.=1 qt.
 - 4 qt.=1 gal.
 - 2 gal.=1 pk.
 - 2 c. sugar=1 lb.
 - 4 c. flour=1 lb.
 - 2 c. butter=1 lb., etc.
2. Practice.
 - a. Corn soup.
 - b. Bean soup.
 - c. Toasted crackers.
 - d. Noodles.

Lesson VI.

1. Setting the table.
 - a. Have table in center of room.
 - b. Have silence cloth or clean blanket.
 1. Quietness.
 2. Protection.
 - c. Table cloth even on all sides.
 - d. Center-piece in center of table.
 1. Flowers.
 2. Linen.
 - e. Be sure table linen is clean.
 - f. Place fork on left side of plate, tines up.
 - g. The knife is on the right side with sharp edge toward plate.
 - h. Water glass placed at tip of knife.
 - i. Napkin placed at left side.
2. Notes.
 - a. Tea and coffee.
 - b. Table etiquette.
3. Practice.
 - a. Tea and coffee.
 - b. Marguerites.

Lesson VII.

1. Beverages.
2. Notes on cocoa and chocolate.
 - a. Source.
 - b. Preparation for shipment.
 - c. Manufacture.
 - d. Cookery.
 - e. Value as food.
3. Practice.
 - a. Hot chocolate.

Lesson VIII.

1. Sugars.
 - a. Source.
 - b. Manufacture.
 - c. Classification—carbohydrate.
 - d. Effects of heat.
 1. With water.
 2. Without water.
 - e. Effects of acids on sugar.
 - f. Digestion.
 - g. Use of carbohydrate as food.
2. Practice
 - Taffey.
 - Peanut brittle.
 - Fudge.

Lesson IX.

1. Candy and nuts.
 - a. Cookery of sugar.
 1. Blow thread stage.
 2. Soft ball.
 3. Hard ball.
 4. First cracks.
 5. Second cracks.
 - b. Notes on nuts.
 1. Value as food.
 2. Kinds.
2. Practice.
 - a. Fondant.
 - b. Salted nuts.

Lesson X.

1. Fruit.
 - a. Value.
 - b. Danger of unripe and overripe fruit.
 - c. Cookery.
 1. Mostly eaten raw.
 2. Stewing softens cellulose.
 3. Dried fruit.
2. Practice.
 - a. Dried prunes, apricots or peaches.
 1. Note.—Soak dried fruit 24 hours before cooking and cook slowly, add sugar just before fruit is done.
 - b. Sauted apples.

Lesson XI.

1. Fruit (continued).
 - a. Definition.
 - b. Classification.
 1. Flavor fruits—more than 80% water, example orange.
 2. Food fruits—containing less than 80% water, example dates.

2. Practice.
 - a. Blushing apples.
 - b. Cranberry sauce.

Lesson XII.

1. Fruit (continued).
 - a. Digestibility depends upon
 1. Nature of fruit.
 2. Degree of ripeness.
 3. Personality of individual.
 - b. Value as food.
 1. Small per cent of nutriment in form of sugar.
 2. Stimulate appetite.
 3. Improves digestion because of stimulant to peristaltic action.
 4. Acts as laxative.
 5. Gives variety of diet.
2. Practice.
 - a. Cranberry tapioca.

Lesson XIII.

1. Eggs.
 - a. Kinds.
 - b. Structure.
 1. Shell, lining, white, yolk, nucleus and cords.
 - c. How to know a fresh egg.
 1. Porous, rough, dull shell.
 2. Clear, when held to light.
 3. Sink in water.
2. Practice.
 - a. Creamy egg on toast.
 - b. Coddled egg.

Lesson XIV.

1. Eggs(continued).
 - a. Preservation.
 1. Causes of spoiling.
 - a. Bacteria enter through pores of shell.
 - b. Development of nucleus.
 2. Methods of prevention.
 - a. Exclusion of bacteria by coating shell.
 - b. Providing temperature unfavorable to growth of bacteria or nucleus.
 3. Notes on albumen.
 - b. Cookery.
 1. Low temperature to coagulate.
 2. High temperature toughens and makes digestion difficult.
2. Practice.
 - a. Poached egg in bread boxes.

Lesson XV.

1. Milk.
 - a. Kinds—goat, cow, reindeer.
2. Composition—Water, proteid, fat, carbohydrate, mineral matter.
3. Value as food.
 - a. Complete food for infants.
 - b. Requires too large amount, to sustain adults if used alone.
 - c. Easily digested.
 - d. Easily combined with other foods.
4. Practice.
 - a. Egg and milk combinations.
 - b. Custards.

Lesson XVI.

1. Cheese.
 - a. Kinds,
 1. Hard, Edam, etc.
 2. Soft, Limberger, Cream, etc.
 - b. Manufacture.
 - c. Cookery.
 1. Touchened and made less digestible by high temperature.
 - d. Value as food.
 1. Extremely concentrated.
 2. Difficult to digest because fat surrounds casein.
 3. Digestibility increased if finely divided and mixed with starchy foods.
2. Practice.
 - a. Cheese pudding.
 - b. Macarroni and cheese.
 - c. Cottage cheese.

Lesson XVII.

1. Meat.
 - a. Kinds.
 1. Animals, fowl, fish.
 - b. Care of meat.
 1. Remove from paper immediately.
 2. Keep in a cool place.
 3. Wipe carefully with a damp cloth.
 4. Should not be allowed to stand in cold water as water draws out juices.
2. Practice.
 - a. Pot roast.

Lesson XVIII.

1. Meat (continued).
 - a. Cookery.
 1. Requires low temperature.
 2. Sear on outside to retain juices.
 3. Connective tissue turns to gelatin.
 4. Some fat removed.

- b. Value as food.
 - 1. Source of easily digested proteid and mineral salts.
 - 2. Should be combined in foods with carbohydrates.
- c. Cooking tough cuts of meat.
- d. Cooking tender cuts of meat.
- 2. Practice.
 - a. Meat croquettes.
 - b. Minced meat on toast.

Lesson XIX.

- 1. Meat (continued).
 - a. Beef.
 - 1. Cuts (See Farmer's Bulletin No. 34.)
 - 2. Selection.
 - b. Use of proteid.
 - 1. Builds new tissue.
 - 2. Repairs waste.
 - 3. Furnishes energy for heat and work.
- 2. Practice.
 - a. Meat stew with dumplings.

Lesson XX.

- 1. Meat and fish.
 - a. Veal.
 - 1. Lacks in flavor.
 - 2. Less digestible and paler in color than beef.
 - b. Mutton.
 - 1. High melting point of fat makes it less digestible than beef.
 - 2. Strong flavor.
 - c. Pork.
 - 1. Mixture with fat makes it less digestible than beef.
 - d. Fish.
- 2. Practice.
 - a. Creamed salmon.
 - b. Rice and salmon.

Lesson XXI.

- 1. Gelatin.
 - a. Source.
 - b. Manufacture.
 - c. Characteristic.
 - d. Effect of heat.
 - e. Value as food.
- 2. Practice.
 - a. Gelatin.
 - b. Lemon whip.

Lesson XXII.—Starch.

- 1. Cereals.
 - a. Definition.
 - 1. Cereals are grass cultivated for their grains.
 - 2. Certain kinds found in every section of the globe.

- b. Kinds—Wheat, rice, corn, oats, rye, barley.
- c. Oats.
 - 1. Richest in fats.
 - 2. Rich in proteids and mineral salts.
 - 3. Cannot be used for bread flour, due to deficiency of gluten.
- 2. Practice.
 - a. Rolled oats.

Lesson XXIII.—Starch (Continued).

- 1. Cereals (continued).
 - a. Wheat.
 - 1. Source of bread flour.
 - 2. Contains proteids in form of gluten.
 - b. Rice.
 - 1. Richest in starch.
 - 2. Poorest in mineral matter, fat and proteid.
- 2. Practice.
 - a. Cream of Wheat with raisins.
 - b. Steamed rice.

Lesson XXIV.—Starch.

- 1. Cereals (continued).
 - a. Corn.
 - 1. Economical in price when compared with composition.
 - 2. Poor in mineral salts.
 - 3. Not used for bread flour, due to deficiency of gluten.
- 2. Practice.
 - a. Corn meal mush.

Lesson XXV.

- 1. Flour mixtures.
 - a. Classification.
 - 1. Batters.
 - a. Pour.
 - b. Drop.
 - 2. Dough.
 - a. Soft.
 - b. Stiff.
 - b. Leavening.
 - 1. Reasons.
 - 2. Methods.
 - a. Expansion of water by heat.
 - b. Expansion of air incorporated by—
 - 1. Heating.
 - 2. Addition of beaten eggs.
 - c. Generation of gas
 - 1. By chemicals.
 - a. Soda.
 - b. Baking powder.
 - 2. By yeast.
 - c. Notes on cake baking.
- 2. Practice.
 - a. Simple cake.

Lesson XXVI.

1. Bread (See N. M. Agricultural College Bulletin).
 1. Conditions necessary for good bread.
 - a. Flour.
 - b. Yeast.
 - c. Manipulation.
 - d. Baking.
 - e. Care after baking.
 2. Description of ideal loaf.
 1. Outside.
 - a. Color.
 1. Shade—a golden brown.
 2. Even color throughout.
 - b. Surface.
 1. Smooth—no crack nor blemish.
 - c. Shape.
 1. Square edges.
 2. Rounded top.
 3. Symmetrical.
 2. Inside.
 - a. Thoroughness of baking.
 - b. Appearance of crumb.
 1. Texture.
 2. Color.
 - c. Taste.
 1. Sweetness (absence of acid).
 2. Flavor—Nutty.
 2. Practice.

Bread.

Lesson XVII.

1. Vegetable.
 - a. Parts of plant used.
 1. Roots, stems, bulbs, leaves, flowers, fruit, tubers, seed.
 - b. Composition.
 1. Water, minerals, acids, starch, sugar, cellulose, flavoring matters, proteid.
2. Practice.
 - a. Duchess potatoes.
 - b. Glazed sweet potatoes.

Lesson XXVIII.

1. Vegetables (continued).
 - a. Preparation.
 1. Fresh.
 - a. Freshly gathered or put in cold water or wrapped in damp cloth.
 - b. Often eaten raw alone, or in salads.
 - c. If cooked, use little water, steam or bake.
 2. Winter vegetables.
 - a. Store carefully to retain crispness and prevent growth.

- b. Requires cooking to soften cellulose.
 - 1. Salt added to water retards softening of cellulose.
- c. Strong flavor—cook uncovered—sometimes parboil with soda water.
- 3. Dried vegetables.
 - a. Water lost by evaporation necessary to restore by soaking.
- 2. Practice.
 - a. Steamed squash.
 - b. Split peas.

Lesson XXIX.

- 1. Methods of serving vegetables.
 - a. Plain-boiled.
 - b. Plain-baked.
 - c. Mashed.
 - d. Buttered.
 - e. Creamed.
 - f. Scalloped.
 - g. Cream soups.
 - h. Vegetable soups with meat stocks.
 - i. Salads,
- 2. Practice.
 - a. Creamed tomatoes and buttered limas.
 - b. Rules for serving.

Lesson XXX.

- 1. Vegetables (continued).
 - a. Digestibility and use as food.
 - 1. Cellulose not used by body as food.
 - 2. Bulk furnished stimulating to intestinal movements, thus aiding digestion.
 - 3. Freshness and acids, also a stimulant.
 - 4. Mineral salts valuable.
 - 5. Proteids of vegetables less easily taken care of than animal proteid.
- 2. Practice.
 - a. Corn custard.
 - b. Mashed turnips.

Lesson XXXI.

- 1. Desserts.
- 2. Practice.
 - a. Steamed chocolate pudding and vanilla sauce.
 - b. Bread pudding sauce.

Note.—Candy making may be taken up at Christmas time, and realizing that most rural schools have no oven, bread baking may be taken up in theory at school: recipes given to be tried at home and results brought to school.

Lesson XXXII.—Salads.

Lesson XXXIII.—Left Overs.

SUGGESTIONS FOR CHEAP EQUIPMENT.

Mixing bowl earthen ware, large, 2 quarts	\$.25
Mixing bowl earthen ware, 1 pint size	.10
Utensil plate, tin	.10
Dover egg beater	.15
Pie plate, agate	.10
Wooden spoon	.10
Case knife	.10
Case fork	.10
Paring knife	.10
Tea pot	.15
Coffee pot	.15
1 Table spoon, German silver	.05
1 Dessert spoon, German silver	.05
2 Tea spoons, German silver	.05
Measuring cup, glass	.10
Measuring cup, tin	.05
Sauce pan, $\frac{1}{2}$ pint size	.10
Sauce pan, 2 quart size	.30
Frying pan, iron, small	.10
Sifter	.05
Muffin pan, set of six, tin	.05
Bread tin	.10
Baking dish, 1 pint size	.10
Tea strainer	.05
Dishpan	.25
Draining pan	.10
Tea kettle	.50
Asbestos mat	.05
Vegetable and desk brushes	.10
2 Small china plates	.20
Cup and saucer	.10
Cherbet glass	.10
Small odd dishes?	
Salt shaker	.10
Pepper shaker	.10
Tray	.15
Cream pitcher	.10
Sugar bowl	.15
6 Jelly glasses with covers for supplies	.15
6 Fruit jars with covers for supplies	.30
3 Towels, flour sacks.	
2 Dish cloths, crash.	

 \$5.00

**A BRIEF OUTLINE FOR COURSE IN AGRICULTURE FOR THE
PUBLIC SCHOOLS OF NEW MEXICO.**

New Mexico Agricultural College.

1. Suggestions about the course:

Most of the schools are ungraded, or rather multigraded, and have but one teacher. The most advanced pupils are probably fifth and sixth grade. In such a condition use the adopted text as a reader, and let the teacher prepare and perform the simple experiments given in the text and this outline.

.. In the graded schools, use the text in the seventh and eighth grades—preferably the eighth. Have the pupils collect materials for the experiments and perform them with the help of the teacher. In addition to the experiments in the text, use those suggested in Farmer's Bulletin 408—School Exercises in Plant Production—U. S. Dept. of Agriculture. The Bulletin is free.

In cities and towns, where the pupils all live near, vacant lots can be cleared of rubbish and put into gardens. The products raised can be divided among the growers for their own table or sold. Be sure, above all things, to have the pupils "do something."

In the country, it is better to encourage each pupil to have a patch of his own. Let him work this according to the ideas he gets in the study of Agriculture and the reading of farm papers. If the pupils desire it, let them organize an Industrial Club and enter the various contests of district, county and state. (Write the Supt. of Extension, State College, N. M., for information about Industrial Club Work.)

If there is a good farmer in the community who is willing to spare the time, ask him to accompany you and your class over his field or through his orchard at the time you are studying a question that may be emphasized by such a tour. Tell the farmer beforehand what you are studying and what you wish him to show the class.

In studying crops place the stress on those that are grown or can be successfully grown in that community. Remember that if you would keep up the interest, you must make connection between the class study and the practical application.

Outline.

1. Definition of Agriculture.

The broad meaning of—

The narrow meaning of—

Changes wrought in agriculture by scientific methods.

What is the outlook—general, particular?

Why study agriculture?

2. The study of the soil is the foundation of agriculture.

What is soil?

Its physical properties—color, fineness, loose or hard, etc.

Some chemical elements in the soil.

Agents at work in making soil.

Ways of improvement.

(Have the pupils collect samples of soil as gravelly, sandy, loamy, silty, clayey, etc. Some with humus and some without. Keep these samples in large mouthed bottles. Examine them closely.)

3. Soil Moisture.

The need of moisture.

How to test the water-holding and water-absorbing power of soils.

Drainage of water-logged soils.

Evaporation—Alkali deposits.

Irrigation—From streams; from wells.

Practice of holding moisture in dry-farming.

(See experiments in the text, pages 13 and 14. See those in Farmers' Bulletin No. 408, pages 38 to 45.)

4. Tillage of the soil:

How? Why? When?

Special methods for dry-farm tillage.

Principal tillage tools and their use.

5. Plants:

The parts of, and the work of each part.

How plants feed—root hairs.

Root tubercles on legumes—their function.

Substances removed from the soil by plants.

Plants need air and sunlight.

The use and circulation of the sap.

Ways of propagating plants—Grafting, Budding, Cuttings, etc.

Flowers—Pollination—Seeds.

(Text, pages 39 to 62. Farmers' Bulletin No. 408, pages 12 to 19.)

6. Seed Selection:

How? Why? When?

Purity test.

Vitality test.

Importance of testing seeds before planting.

Caring for the seed—corn, wheat, kaffir, etc.

(Farmers' Bulletin 408, pages 20 and 23. The text, pages 62 to 72.)

Weeds—when let alone they grow.

7. The Orchard:

Selecting a site.

Preparing the land.

Selecting the varieties.

Planting the trees.

Why most fruit trees are grafted or budded.

How and when to graft and bud—materials.

Plants started by cuttings and layers.

The purpose and plan of pruning.

Thinning the fruit for quality.

Spraying for fungus diseases and insect pests.

Smudging to keep away the frost.

Picking, grading and packing the fruit for market.

(Text, pages 83 to 148.)

8. Plant Diseases:

Kinds, nature of, control.

(Most common diseases are discussed in the text—Agriculture for Beginners—Pages 100 to 116. Spraying mixtures, how to make them, how and when to apply them are found in the appendix, pages 319 to 323.)

9. Insect Pests:

General—Nature and life history—where and how they live.

Anatomy and physiology—parts and their use.

What they eat and how—mouth parts, biting or sucking.

How to prevent and control them—birds, traps, spraying, cultivation, clean fields and orchards.

(See text, pages 118 to 125 and also 319 to 323.)

10. Common Orchard Insects:

San Jose scale, Codling Moth, Peach tree borer, Tent caterpillar, girdler, canker worm, grape, phylloxera.

(Text, pages 126 to 140.)

11. Garden and Field Insects:

Cabbage bug, squash bug, potato beetle, plant louse, Chinch bug, Hessian fly, weevil, corn ear worm.

(See text, pages 140 to 147.)

12. Field Crops, Simple Classification.

Grain crops—corn, wheat, oats, barley, rye.

Tubers and roots—Potatoes, turnips, beets.

Forage and hay—sorghums, grasses, legumes.

Fiber crops—cotton, flax.

Vine crops—watermelons, cantaloupes.

2. Choice of crops as to climatic and soil conditions:

Irrigated, dry-farm, high altitude with rain fall.

3. Cultivation and rotation:

Cultivation varies with soil and climate.

Rotation is good farm practice—three, four, five and six-year rotations. Each should have a legume in the rotation. Why?

(Text, pages 148 to 175, also 284 to 307. Hunt's "Cereals in America" and "Forage and Fiber Crops," Orange Judd Co., N. Y.)

13. Truck Gardening: Cabbage, onions, tomatoes, peas, beans, lettuce, celery, etc.

Gardening requires special care, fertilizing and cultivation.

Learn how to make a hot-bed and a cold-frame. What are their uses?

(Text, pages 247 to 267.)

14. Animals for the Farm and Ranch:

Horses—Some breeds; How to judge qualities; Treatment.

Cattle—Breeds; Beef and Dairy Types; Feeding; Products.

Sheep—Breeds; Wool and Meat.

Hogs—Breeds; Lard and Bacon Types; Feeding.

Poultry—Breeds, egg, meat and fancy.

Study the purpose of the principal breeds with the care and feeding. Get the principal points in judging. Learn a few of the common diseases and treatments. (Text, pages 182 to 207.)

15. Farm Dairying:

Type of dairy cow—triple wedge; long body and angular; lean fleshed; large mouth, nose and eyes; large and well-placed udder; large and crooked milk veins; soft, velvety feel to the hair and skin; a gentle disposition.

Care and feeding—the silo, a balanced ration.

Milk—quantity and quality, the Babcock test, the separator.

Cream—ripening and churning.

Butter—grainy, rich color and flavor.

Cheese.

Get the pupils interested in the cows at home and they will look for the points in judging. If possible, have the class do some judging. A testing outfit with necessary material will cost less than \$10.00.

(Text, pages 216 to 227.)

16. Machinery for the Farm:

Kinds, care and use. Study the simpler pieces—plows, harrows, seeders, cultivators, mowers and rakes. These should be studied in connection with tillage and crops.

Some effective, practical work can be done in knots and splices of rope. Send for a copy of the Iowa Agriculturist Rope Book, Ames, Iowa. The cost is fifteen cents.

17. Birds are Friends of the Farmer.

Study their habits and encourage their presence on the farm.

Plant trees for them to build in. They help control the insects and make life more cheerful by their songs.

(Text, pages 234 to 240.)

18. Road Building: Good roads are necessary—both time and money savers.

How to build them. Who should do the work?

Their use and how to keep them in repair.

(Send to the Dept. of Agriculture, Washington, D. C., for bulletins on roads and road building, the road drag, etc.)

19. The Home. In making a home, build for convenience, comfort and attractiveness.

Flowers are worth more than they cost in care and work. The three rules for making a landscape beautiful are: Mass the flowers; avoid straight lines; leave plenty of open space.

20. Country Life:

What can make it better and happier? (Text, page 240.)

Other references and helps: A list of all free bulletins can be had by writing the Secretary of Agriculture, Washington, D. C. For High School Agricultural and Home Economics, send to E. T. Fairchild, State Supt. of Pub. Instruction, Topeka, Kas., for the outline in that state. It is splendid.

If a question arises that seems difficult to answer, write the New Mexico College of Agriculture, State College, N. M.

OUTLINE IN MANUAL TRAINING—GRADES I. TO VIII. INCLUSIVE

OUTLINE IN MANUAL TRAINING.

The outline in Manual Training is intended to suggest work for the various grades, but it is not expected that all of the work here mentioned will be accomplished by any one school, however, it is hoped that the outline is broad enough so that parts of it will meet the conditions in every part of the State.

Grade I.

1. Paper Folding—
 - a. Fold paper according to drill and make soldier cap, picture frame, boxes, chairs, tables, wagons, furnish rooms, and equip farmyard, etc.
2. Freehand Paper Cutting—
 - a. Cut from object and memory—Fruits, boats, animals, screens, etc.
 - b. Geometrical forms—Squares, circles, diamonds, triangles, etc.
3. Seed and stick laying.
4. Clay Modeling—

Cubes, spheres, prisms.

From these model fruits, vegetables, animals, etc.
5. Weaving—

Paper mats, trays, baskets, boxes, bookmarks, etc.
6. Raffia Work—

Braiding cords, raffia strings for tying parcels, etc.
7. Book-binding—

Word book of unfolded leaves—paper covers, punched and laced; Book for paper cuttings of folded sheets sewed through the fold, etc.

Cloth Picture Book.

Before introducing the Manual Training lesson, the teacher should get the children into the spirit of the work by having a conversation lesson, telling a story, showing pictures, etc. Have an aim in view and make the work practical.

A few suggestions for some special occasions are:

OCT. 31—HALLOWE'EN.

Constructive work: Jack O'Lanterns, etc.

NOV. ——THANKSGIVING DAY.

Mayflower, Pilgrim's house, sword, hat, churn, cradle, clock, chair, fireplace, church, Plymouth Rock, canoes, turkeys etc.

DEC. 25—CHRISTMAS.

Christmas tree, toys, fireplace, stocking, bell, lantern, star, festoons, gifts, etc.

JAN. 1—NEW YEAR.

Calendars—games.

FEB. 12—LINCOLN'S BIRTHDAY.

Soldier's cap, flag, gun, fort, cabin, knapsack, etc.

FEB. 14—VALENTINE DAY.

Valentines of various kinds.

FEB. 22—WASHINGTON'S BIRTHDAY.

Cherries, hatchet, tent, cannon, fort, drum, etc.

MARCH 17—ST. PATRICK'S DAY.

Hat, pipe, shamrock, books decorated with shamrock, etc.

EASTER SUNDAY.

Chicken-coop eggs, Easter lilies, baskets, rabbits, etc.

APRIL.

Umbrellas, games, tally cards, books.

ARBOR DAY.

Trees, hoe, spade, etc.

MAY 1—MAY-DAY.

May-pole, crown for May Queen, floral decorations, flowers, baskets.

MOTHER'S DAY.

White Carnations, Programmes, Books, etc.

DECORATION DAY.

Flags, wreaths, flowers, badges, Boy Scout movement, Campfire Girls.

JUNE ——FLAG DAY.

Flags, shields, etc.

JULY 4—INDEPENDENCE DAY.

Games—indoor and outdoor.

Grade II.

1. Paper Folding—

Use the same drill for dictation work as in the First Grade.

2. Free-hand Paper Cutting—

Illustrate a story, "Hiawatha," cut from life.

Basket, valentine, heart, canoe, tepee, booklet, envelope, etc.

3. Clay Modeling—

Low dishes, Indian pottery, bowls, tile designs, birds, animals, Mexican pottery, etc.

4. Weaving—

Raffia, paper, rags, yarn, string, make hammock, rugs, holders, mats, caps, etc.

5. Book-binding—

Books to meet school and home needs.

Make drinking cups.

6. Sand Table—

Indian landscape—wigwam.

Grade III.

1. Paper Folding—

Combine cutting, folding and pasting. Make pin-wheel, fireplace, log cabin, chairs, table, bench, clock, cradle, Indian camp, etc. Circus. Make animals and cages.

2. Cardboard Construction—

Make tags, post cards, photo mounts, book-marks, yarn and thread winders, calendar backs, booklets, envelopes, doll house furniture, match scratchers.

3. Clay Modeling—An Indian pueblo.

Build Indian bowls.

Make jars, vases, fruit, tiles, etc.

4. Reed and Raffia Work—

Make simple baskets, trays and picture frames, napkin rings, braided baskets, etc.

5. Bookbinding—

Book to press leaves and flowers, blotter leaves, stubs, boards, punching and lacing; portfolio-boards, cloth hinge, cover paper sides, and lining, tapes; language book, etc.

6. Drawing—Art, etc.

Grade IV.

1. Transportation—

Using principles previously learned in Paper Cutting, Cardboard Construction, etc. Make kites, aeroplanes, balloons, ships, trains, automobiles, boats, wagons, etc.

2. Box Making and Bookbinding—

Silhouette book; pamphlet; calendar; etc.

Trays with straight and with sloping sides.

Boxes with lid, to meet need of school and home.

3. Pyrography—

Decorate boxes, stands, picture frames, plaques, etc.

4. Basketry.

5. Water color.

Grade V.

1. Woodwork—

Ruler, right angled triangle, ring toss, weather - vane, key-board, tie rack, swing board, calendar back, paper file, bird house, match striker, photo frame.

2. Cord Work—

Boys can make basketball nets.

Girls can make school bag or shopping bag.

The regulation size basketball net is 18 inch in diameter, 18 pieces of cord 72 inches long, double cord and make the first end $\frac{1}{4}$ inch from doubled or loop end. Other knots as far apart as desired. Mesh opening is to be as desired.

3. Lettering—

Roman—Old English alphabet.

Monograms, mottoes, initials, Xmas cards, program covers, note book covers, etc.

Grade VI.

1. Construction of working drawings—

Drawing to a scale. Common but precise use of fractions, studies of cost of materials.

Percentage as discounts, shrinkage and deterioration.

2. Woodwork—

Flower-box for school window. Sandpaper block, hat rack, tool rack, shelf and brush rack, iron stand, nail box, corner bracket, whisk-broom holder, bread-board, loom, key rack, photo frame, book rack, bill file, coat hanger.

3. Bookbinding—

Care of books—repair and mend leaves and back, strengthen covers.

Make gift books, using gingham, burlap, linen or leather for backs.

4. Basketry.

Grade VII.

1. Woodwork—

Scouring board, teapot or flower stand, book rack, shelf or broom rack, brush rack, hat rack, knife box, blotter pad, pin tray, pen and ink stand, magazine rack, plate rack, match safe, towel roller, sled.

2. Designing—

Art. lettering—mottoes, etc. Simple working drawings.

3. Bookbinding—

Book for clippings.

Portfolio for drawings.

4. Leather Work—

Shoe mending.

Burnt leather.

Tooled leather.

Cut leather.

Make bill books, card cases, belts, traveling cases, calendar backs, pillow tops, table covers.

Grade VIII.

1. Woodwork.

Mechanical drawing.

Construction of working drawing.

Plans for houses.

Make library table, taborette, gates, ironing board, foot-stool, chest, child's furniture, towel roller, desk set, stool, medicine cabinet, tool chest.

2. Bent Iron and other craft—

Use $\frac{1}{4}$ inch steel ribbon, pencil, ruler, round and square nosed pliers.

Make: tea-mats, easels, pen racks, picture frames.

3. Hammered Brass and Copper—

Pottery, trays.

4. Stenciling—

Make stencil pattern.

Make curtains, pillow tops, table covers, scarfs, etc.

5. Home Decoration—

Study plans for houses, wall treatment, floor treatment, furniture, curtains and hangings.

6. Type-setting and printing.

CO-OPERATIVE OR COMMUNAL WORK.

Encourage Boys' & Girls' Industrial Clubs.

Boy Scouts and Campfire Girls—

The School Constructive Work—School house improvements, door locks, shelves, book-cases, cupboards, fences, windows, furniture, books, games, etc.

The Home—Houses and furniture may be cut from papers, magazines, etc., and mounted temporarily to give the children a better conception of what is necessary in home-making. Construct house of cardboard or wood and furnish according to rooms. Make utensils required for Home Occupation. These may be arranged according to the days in the week: Monday—wash day; Tuesday—ironing; Wednesday—baking; Thursday—sewing, etc.

The Community Work—

Good roads, clean streets, alleys, repair walks, pull weeds, etc.

BOOKS ON MANUAL TRAINING.

Cardboard Construction; 20c. W. C. A. Hammel.

Coardboard Construction; 90c. J. W. Trybon.

First year in handicraft; 80c. W. J. Kenyon.

Paper folding; 20c. W. C. A. Hammel.

Paper sloyd for Primary Grades; 70c. Edna N. A. Rich.

Indian basket making; 90c. By the Navajo School.

Practical and Artistic Basketry; \$1.00. Laura R. Tensley.

Raffia and Reed Weaving; 45c. Elizabeth S. Knapp.

Hand Loom Weaving; 91c. Todd.

Clay Modeling; \$1.00. Katherine Lester.

How to Teach Clay Modeling; 32c. Amos Kellog.

Construction Work for Rural and Elementary Schools; 54c. Virginia McCaw.

Primary Hand Work; 90c. W. Seegmier.

Book Binding and Care of Books; \$1.12. Douglas Cockerell.

Venetian Iron Work; 32c. T. Vernetta Morse.

Bench Work in Wood. Goss.

Wood Turning. Ross.

First Lessons in Handicraft. Maud Summers.

Handicraft for Girls; \$1.00. McLaughlin.

The Essentials of Lettering; \$1.00. T. E. French.

Economics of Manual Training; \$1.50. Rouillion.

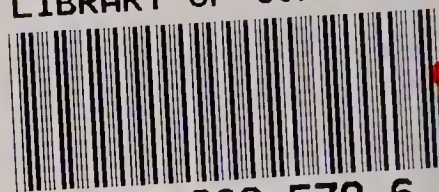
Art Crafts for Beginners; \$1.20. Sandford.

Elementary Lloyd and Whittling; 75c. G. Larson. (For V and VI. Grades.)

Essentials of Woodworking; \$1.00. Griffith.

For teachers who have had no special training in Industrial Work. I would advise the course as given by the National System of Industrial Training, Muncie, Indiana. This system explains and illustrates the separate steps in each model in a very clear and concise manner.

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Learning to Do
Doing to Earn
Earning to Live
Living to Serve

— Arthur D. Dean